PACT3_Comms_Assembly

PACT3 Communications System Component Assembly

Prepared for:
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Overview

The PACT3 Communications System is designed to provide simultaneous secure and non-secure voice channels (using a single headset) and interoperability with the Navy Continuous Training Environment (NCTE). The system is scalable and designed to meet TEMPEST requirements.

The following procedures should used to assemble the main components of the PACT3 Communications system. These components are listed below. A detailed Parts List and associated Computer Aided Design data are provided as separate documents.

1. One – Multi-Channel Communications System (MCCS)
2. One – Acoustic Breakout Box (Acoustic BOB)
3. Twelve – Headset Breakout Boxes (Headset BOB)
4. Six – Foot Push-To-Talk (Foot PTT) switches
5. Four – Hand Push-To-Talk (Hand PTT) switches

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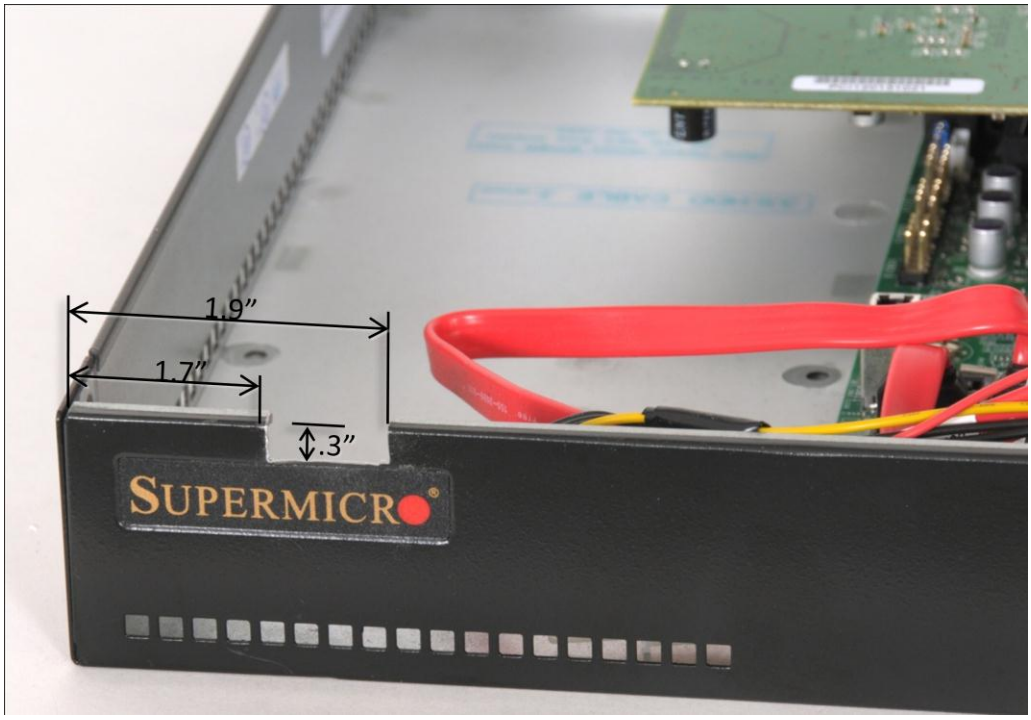
Multi-Channel Communications System Component Preparation

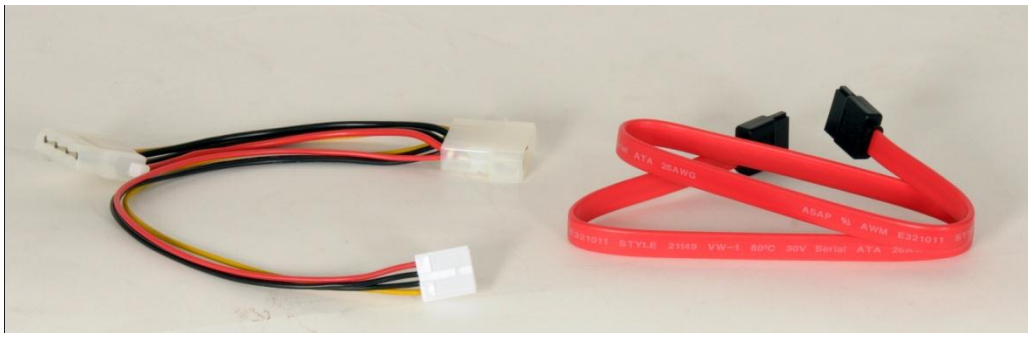
Super Micro Chassis

Step 1: Remove rack mounting wings.

Step 2: Remove internal hard drive and serial port.

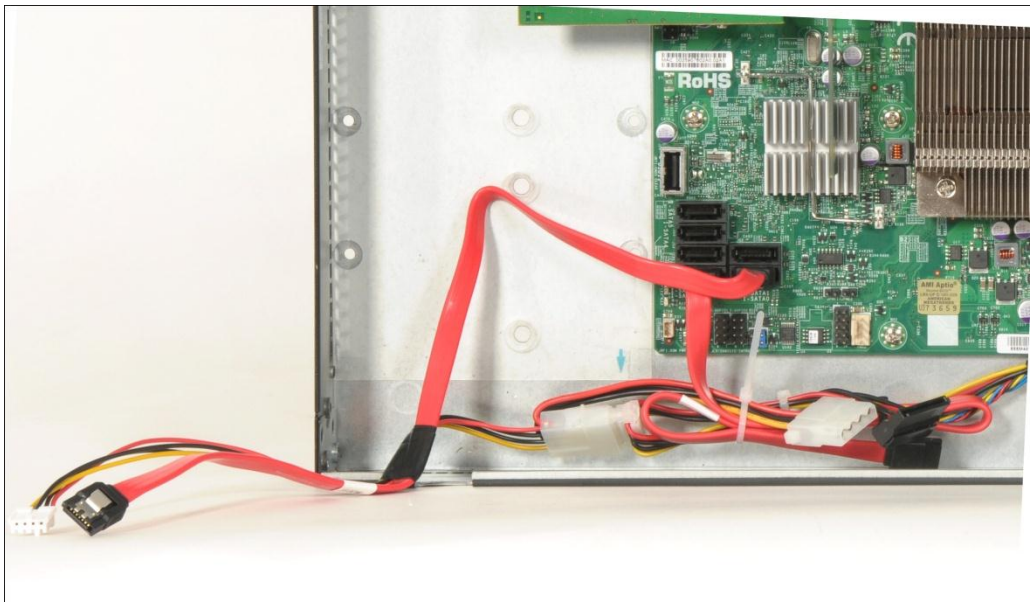
Step 3: Modify the enclosure to accept external SATA cable.





a. Be sure to smooth the edges with a file.
b. Be sure to use the SATA cable included with the compact flash reader in place of the existing SATA cable. (The extra length will be needed when making connections to the reader)

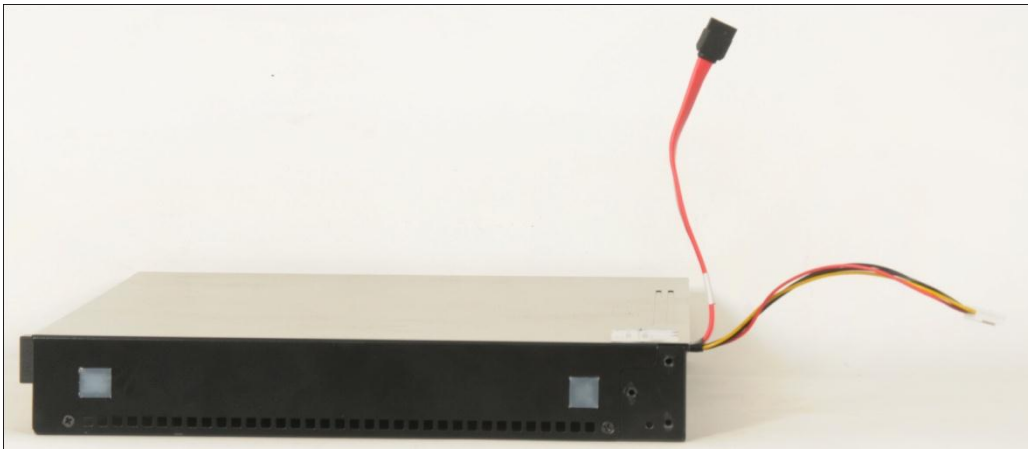
Step 4: Attach to and route the new SATA and power cables through the enclosure.



a. The SATA cable should be connected to the SATA0 slot on the motherboard.
b. Use electrical tape to bind the SATA and power cables together and to provide protection from the sharp edges of the sheet metal case.

Step 5: Install the MOTU card and reattach cover.

Step 6: Attach the adhesive backed plastic slides to sides of the enclosure as shown.

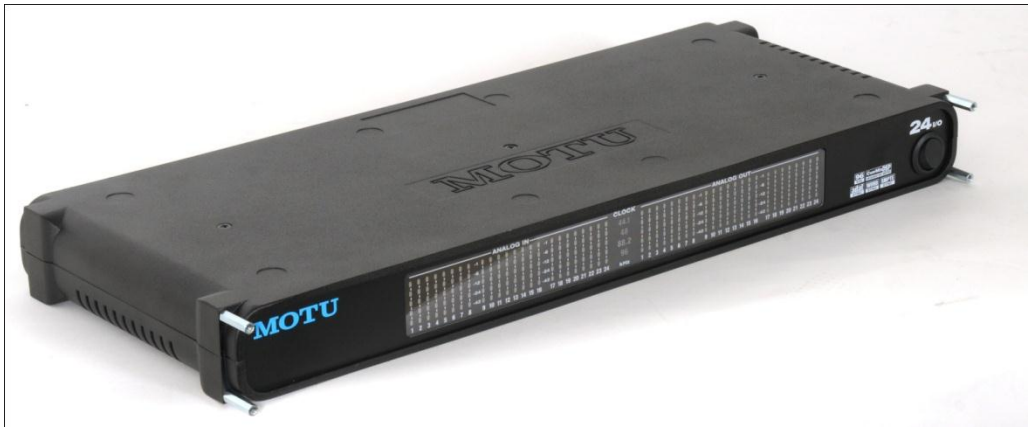


MOTU Chassis

Step 1: Remove rack mounting wings.

Step 2: Put the power switch in the on position.

Step 3: Attach the #6-32 3/4" long standoffs as shown



Multi-Channel Communications System Assembly

Component Mounting

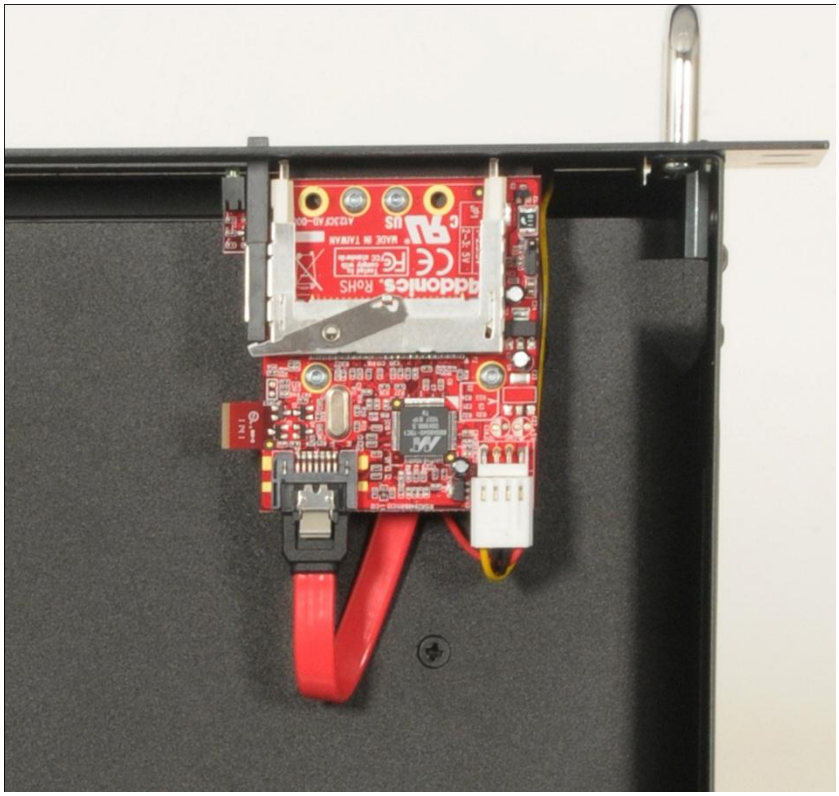
Step 1: Assemble front and back panel with handles using supplied enclosure hardware

Step 2: Use #6-32 button head screws to install the Super Micro chassis into the enclosure.

a. Use three screws on each side. (The holes at the rear of the chassis should not be used)

Step 3: Use #6-32 button head screws to attach the MOTU through the front of the enclosure.

Step 4: Mount the compact flash adapter to the front panel bracket using #4-40 low profile screws and connect the SATA and power cables.



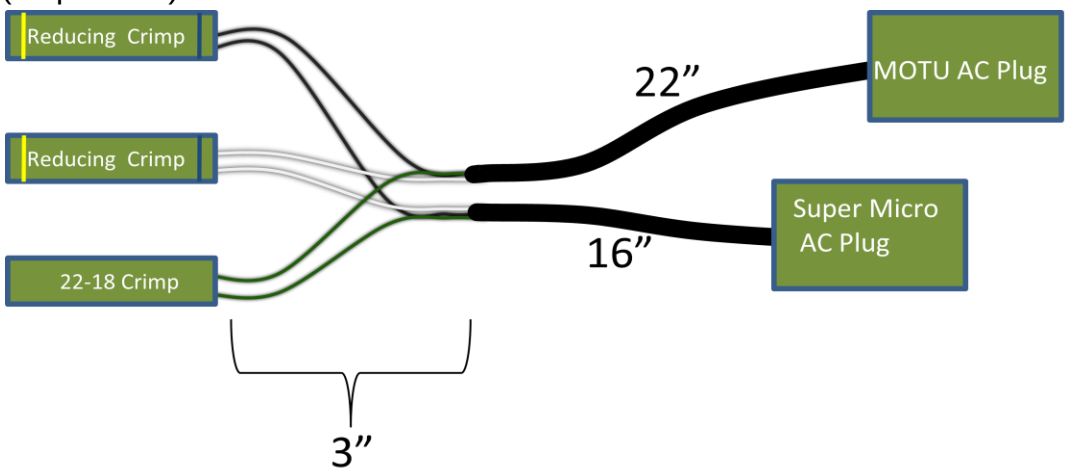
Step 5: Install the mainboard in the enclosure base using #4-40 captive head screws.

a. Use a 1" and .25" standoff to secure the board where the DIO card should be mounted.

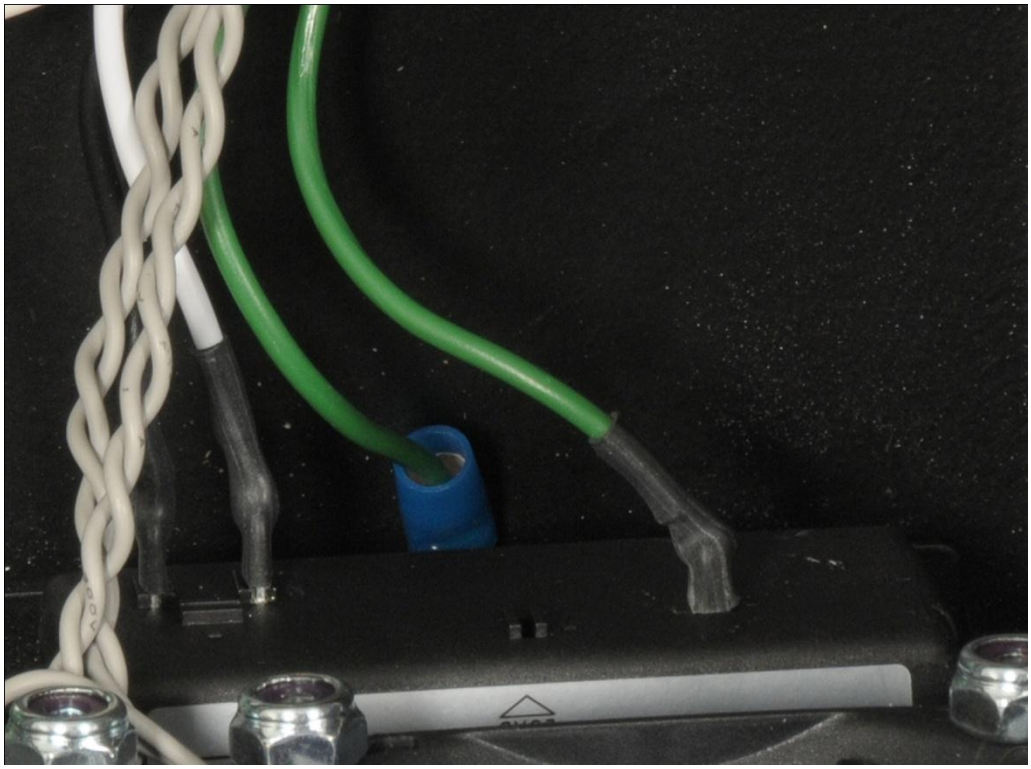
Step 6: Mount the DIO to the main board using #4-40 x 1/4" screws and install the ribbon cable(keyed).

AC Wiring

Step 1: Assemble the Super Micro PC and MOTU power cord crimp harness. (output side) .



Step 2: Solder and heat shrink 3" jumper leads to the power module L(Black) and N (White) terminals. Solder and heat shrink a 4" jumper to the ground terminal(Green) .

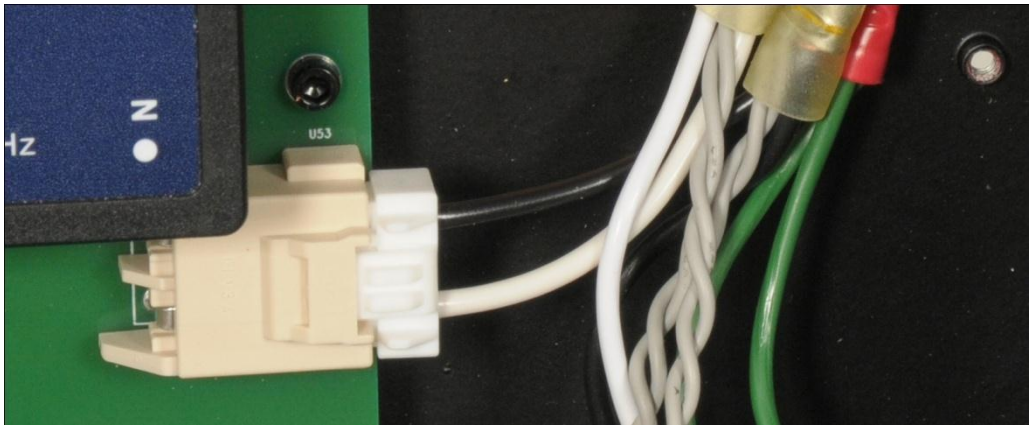


a. Use the extra wire from the power plugs included with the MOTU and Super Micro PC to make these jumpers.

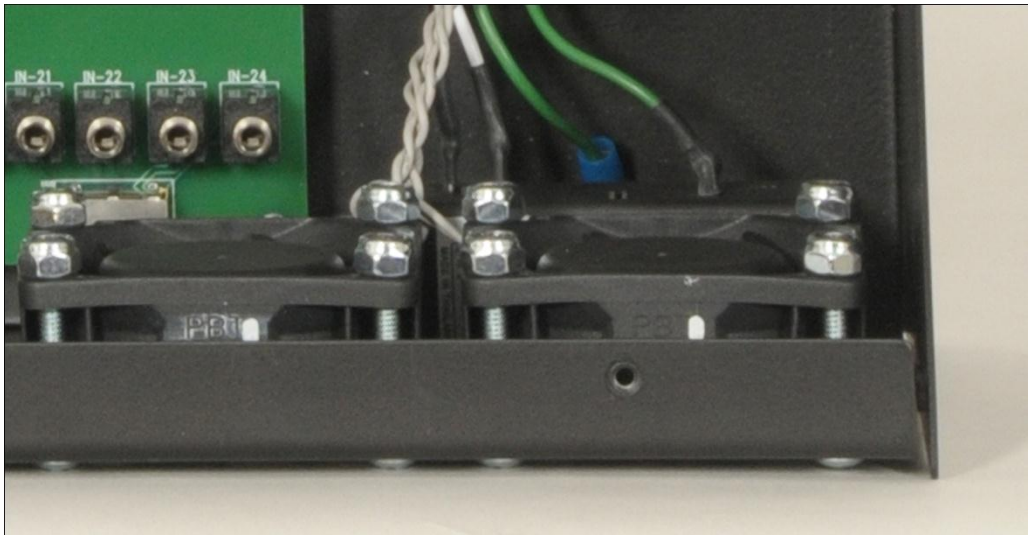
Step 3: Create a 4" jumper from extra green wire with a ring terminal on one end for chassis grounding.

a. Use the extra wire from the power plugs included with the MOTU and Super Micro PC to make these jumpers.

Step 4: Use pre-crimped wire pigtails cut to 2" to assemble the Hirose connector as shown.

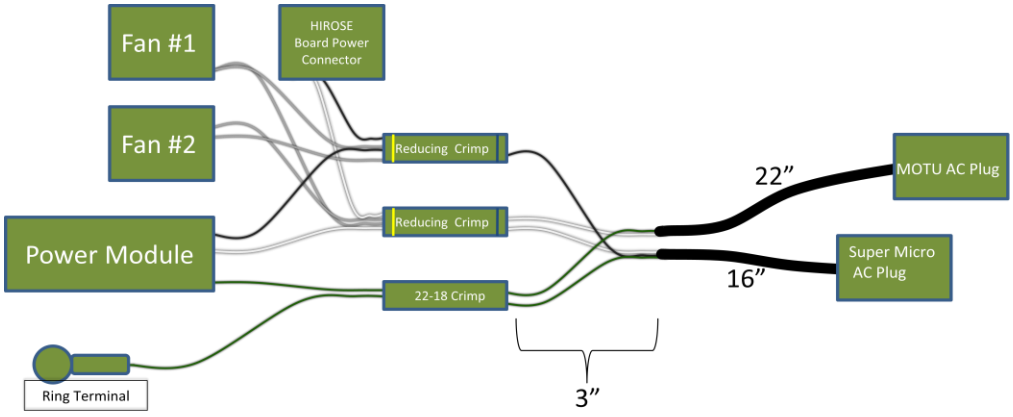


Step 5: Secure the grounding jumper ring terminal to the enclosure mounting stud, press fit the prewired power module into place, and install the exhaust fans using the 1.5" screws, lock nuts, and spacers(Air flow arrows should be pointing out of the enclosure).

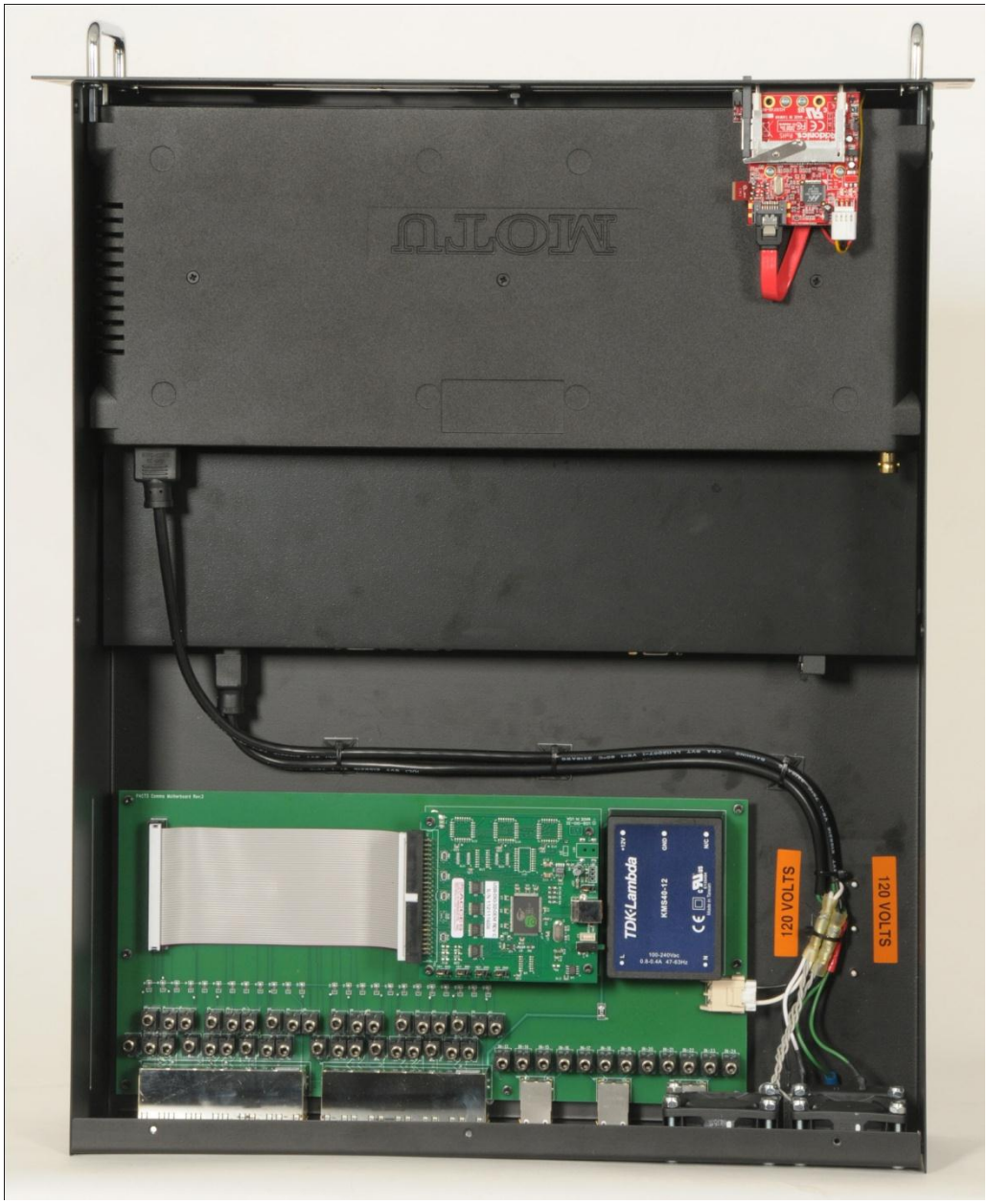


b. Remember to install two fuses in the Power Module.

Step 6: Complete the AC wiring harness



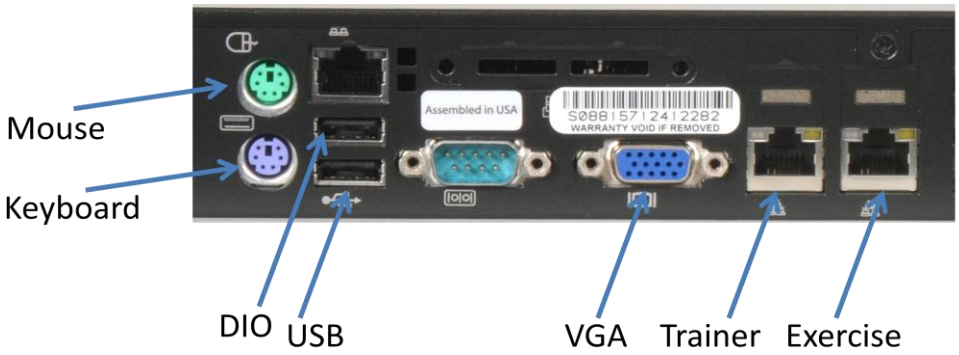
Step 7: To complete the AC wiring, use adhesive backed cable tie downs to secure the harness to the enclosure base and attach 120 VOLTS Labels.



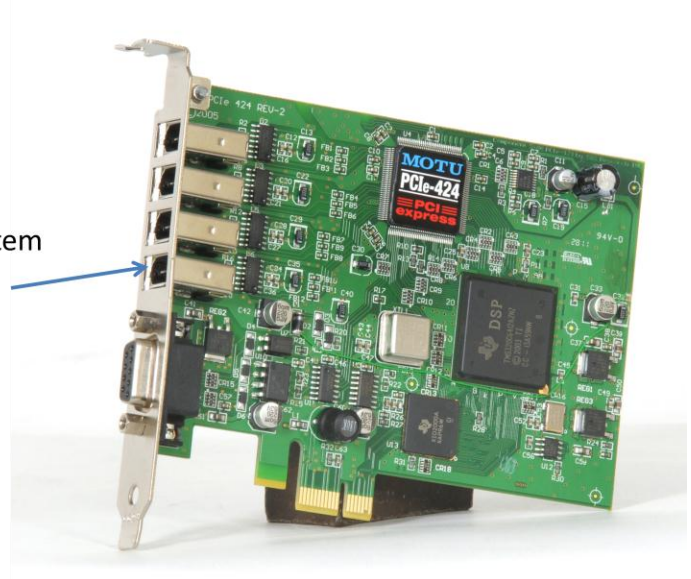
Non-Audio Interconnect

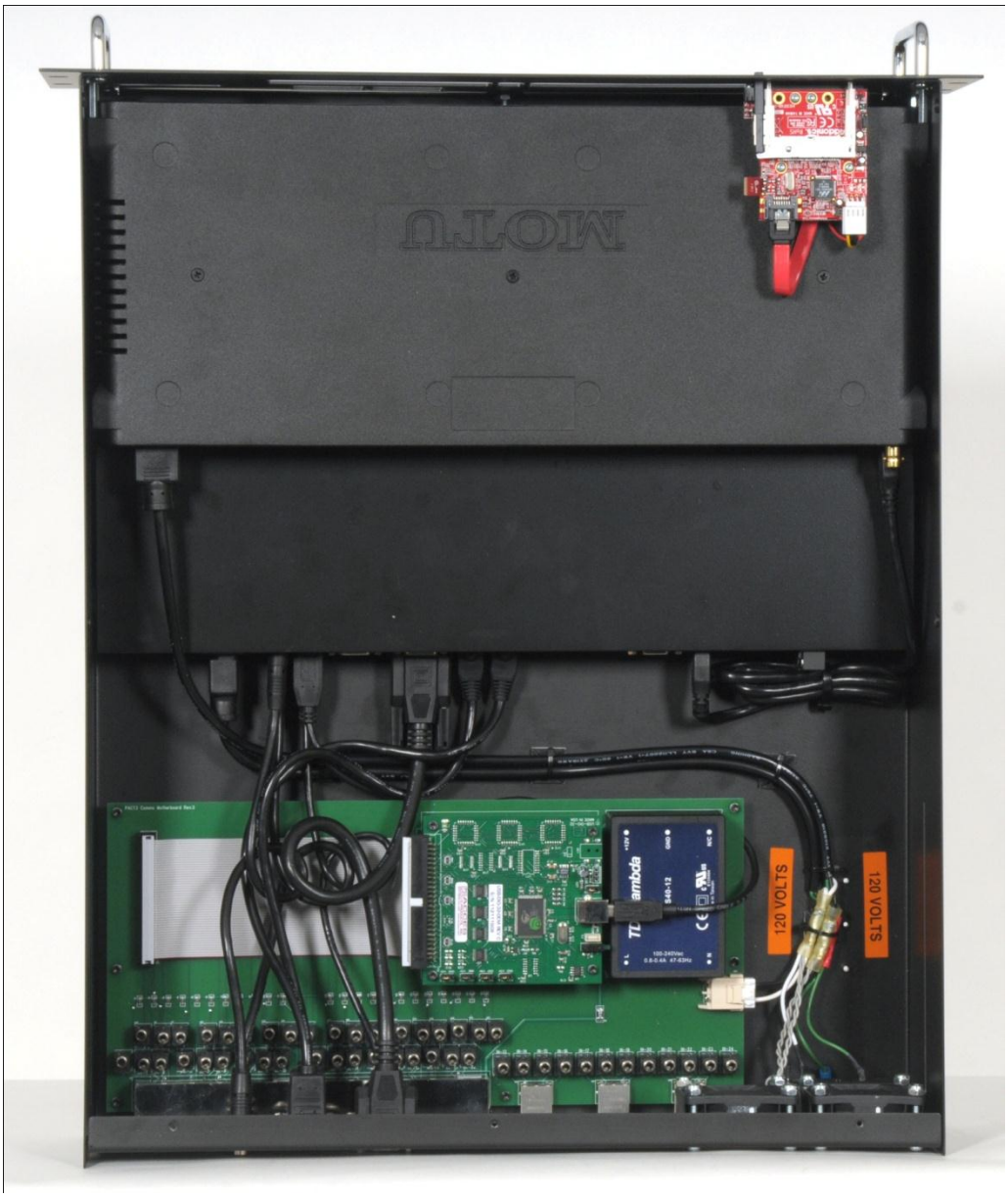
Step 1: Mount the Back Panel Connectors and connect to the Super Micro PC.

Step 2: Connect the USB DIO and FIREWIRE connecions as well.



a. The FIREWIRE cable should be connected between the MOTU and the Core system interface (#1) Connector on the PCI-express card.

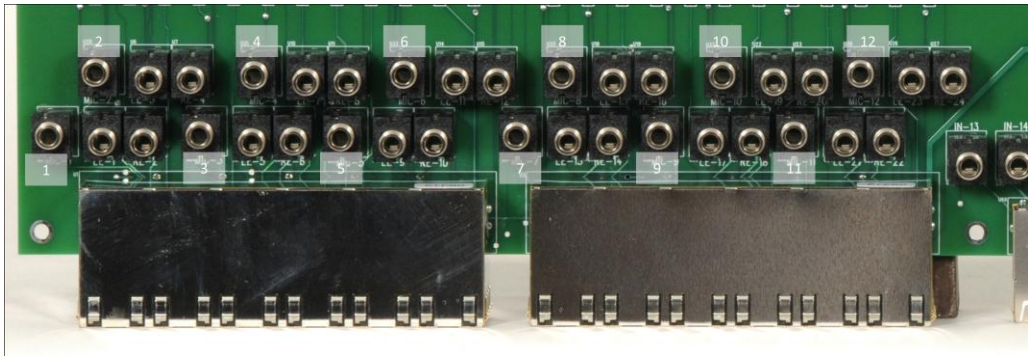

Core system
interface
(#1)
MOTU
PCIe-424
PCI
express
DSP


120 VOLTS
120 VOLTS

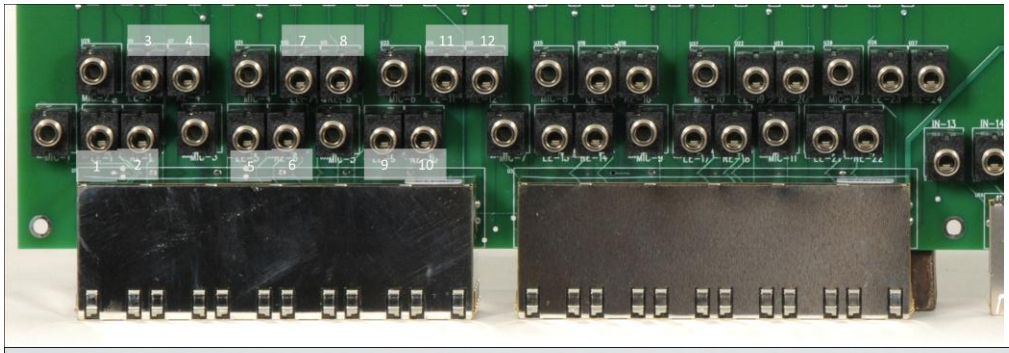
Audio Interconnect

Step 1: Make the audio connections using the .25"-3.5mm TRS cables.

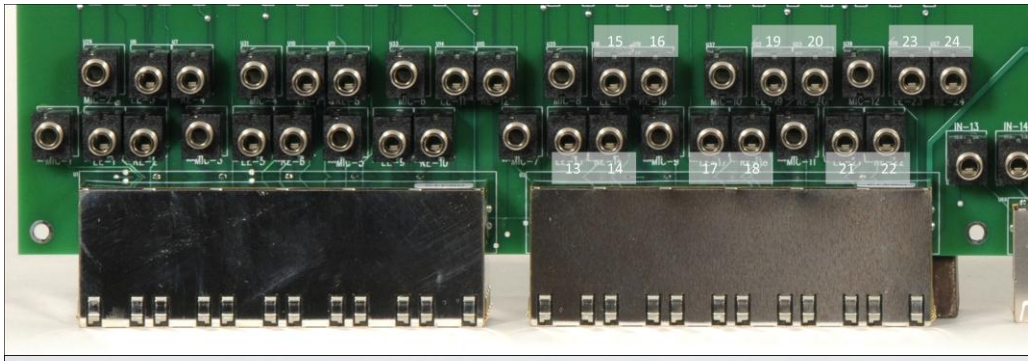
Step 2: Connect the first 12 inputs and bundle with black cable ties.



Step 3: Connect the first 12 outputs and bundle with black cable ties.



Step 4: Connect the outputs 13-24 and bundle with black cable ties.



Step 5: Connect the inputs 13-24 and bundle with black cable ties.

Multi-Channel Communications System Final Assembly

Step 1: Place top cover on the Multi-Channel Communications System enclosure.

Step 2: Secure the top cover using the included hardware. (3 screws each side, 3 top rear and 1 front top)

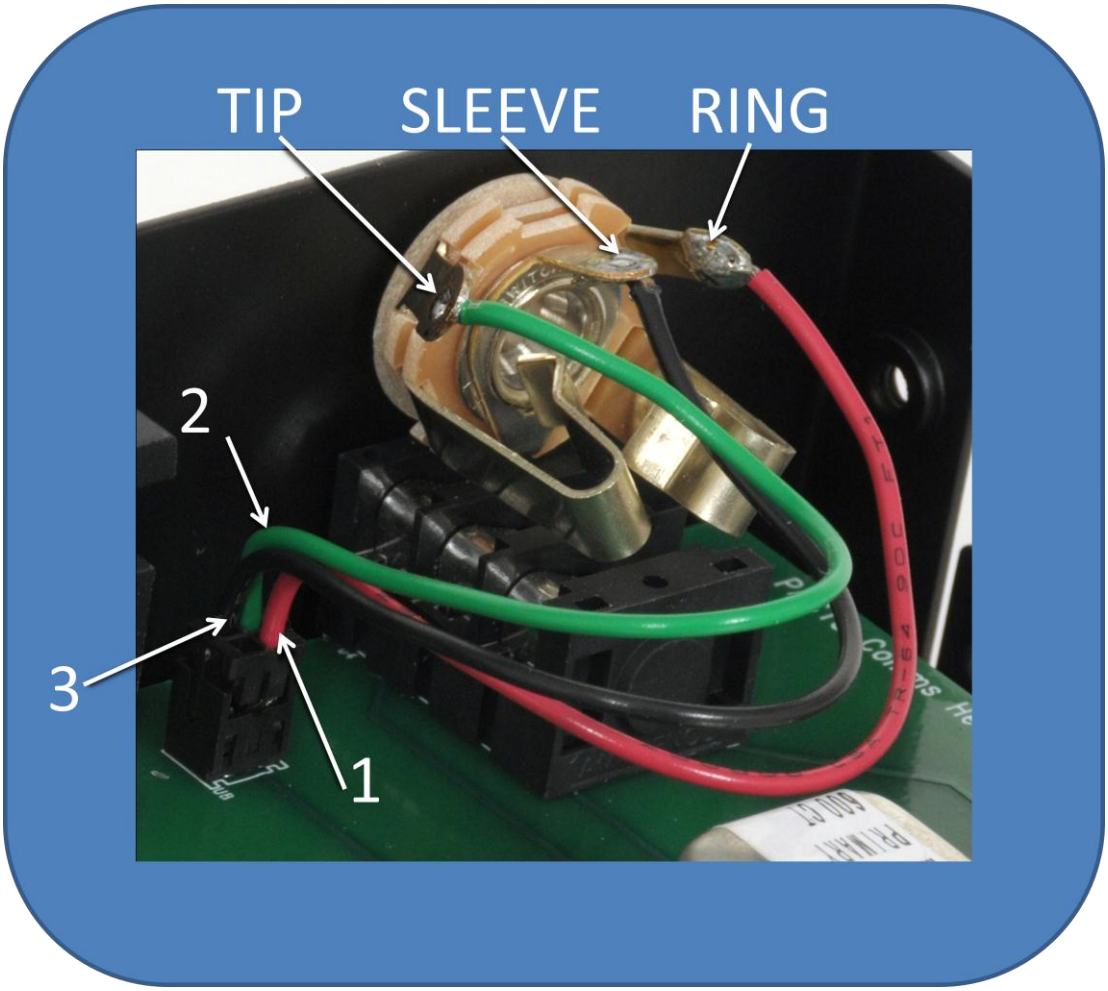
Acoustics Breakout Box Assembly

Step 1: No internal wiring is required to assemble the acoustics Breakout Box.
Step 2: Assemble the enclosure base and back plate using the included hardware.
Step 3: Install the acoustics circuits cards.
Step 4: Attach the front panel.
Step 5: Attach top cover.

Headset Breakout Box Assembly

Microphone Connector Prep

Step 1: Before enclosure assembly, the microphone connector should be soldered to the pre-crimped jumper wires.



Board Installation with LED diffuser

Step 1: Install the circuit card onto the enclosure base.

Step 2: The Power LED on the circuit card needs to be bent up contrary to the instructions silk screened on the card. (should be emitting in a vertical orientation)

Step 3: Install an adhesive backed plastic bumper on the inside of the PWR hole on the base front flange. (This will act as a light diffuser)

Step 4: Install the .206" microphone connector and make the connection to the circuit card. (Confirm that the wiring matches the image above.

Step 5: The final configuration is illustrated below.

Step 6: Attach the lid using the included hardware and install four rubber feet on the bottom of the enclosure.

Foot PTT Switch and Hand PTT Switch

Step 1: Prepare each BNC cable by cutting it in half.

Step 2: The two conductor BNC cable will be connected to the switch closure on the Foot PTT Switch or Hand PTT Switch.

Step 3: Assemble a quantity of 6 Foot PTT Switches and 4 Hand PTT Switches per system

Final Assembled System


Mic
Ears
PTT-1
PTT-2
PWR


B
A
NAWCTSD - CDIL Headset BoB V1.0


IN
1/2
3/4
IN
5/6
7/8
IN
9/10
11/12


3
2
1
NAWCTSD - CDIL Acoustics BoB V 1.0